

M/047/0090  
cc: Leslie

Joro Walker, USB # 6676  
Charles R. Dubuc, USB # 12079  
**WESTERN RESOURCE ADVOCATES**  
Attorney for Petitioners  
150 South 600 East, Ste 2A  
Salt Lake City, Utah 84102  
Telephone: 801.487.9911  
Email: jwalker@westernresources.org  
rdubuc@westernresources.org

**FILED**

**FEB 14 2011**

**SECRETARY, BOARD OF  
OIL, GAS & MINING**

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**BEFORE THE BOARD OF OIL, GAS AND MINING  
DEPARTMENT OF NATURAL RESOURCES  
STATE OF UTAH**

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<b>IN THE MATTER OF THE REQUEST</b>	<b>:</b>	<b>MOTION TO AMEND DISCOVERY</b>
<b>FOR AGENCY ACTION OF LIVING</b>	<b>:</b>	<b>SCHEDULE AND WITNESS LIST</b>
<b>RIVERS TO APPEAL THE DECISION</b>	<b>:</b>	
<b>BY THE DIVISION OF OIL, GAS AND</b>	<b>:</b>	<b>Docket No. 2010-027</b>
<b>MINING TO APPROVE THE</b>	<b>:</b>	
<b>APPLICATION OF EARTH ENERGY</b>	<b>:</b>	<b>Cause No. M/047/0090 A</b>
<b>RESOURCES TO CONDUCT TAR</b>	<b>:</b>	
<b>SANDS MINING AND RECLAMATION:</b>	<b>:</b>	
<b>OPERATIONS AT THE PR SPRINGS</b>	<b>:</b>	
<b>MINE</b>	<b>:</b>	

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A hearing on this matter is set to be brought before the Utah Board of Oil, Gas and Mining (Board) on February 23, 2011. A scheduling order, agreed to by the parties and approved by the Board, has been entered. This scheduling order has been changed several times to accommodate the parties, including the Division of Oil, Gas and Mining (Division), as the parties have prepared for the hearing.

For the following reasons and in the interests of justice and a fair hearing, Petitioner Living Rivers respectfully asks the Board for a change in or clarification of the December 21, 2010 Pre-Hearing Stipulation to Order for Discovery, as amended by the January 13, 2011 Stipulated Order to Continue Hearing and for Amended Pre-Hearing Schedule (Scheduling Order) previously filed with the Board in this matter.

Living Rivers has contacted counsel for Division and applicant Earth Energy Resources regarding this motion. Both the Division and the company agree that the Scheduling Order should be amended or clarified to allow Living Rivers to depose Rob Herbert, Manager, Ground Water Protection Section, Division of Water Quality as the Division now proposes to call Mr. Herbert as a rebuttal witness. Although the Division did not include Mr. Herbert on its December 30, 2011 witness list, it did note that it would identify rebuttal witnesses as soon as they could be determined. Both the Division and Earth Energy Resources oppose the remainder of the relief requested in Living Rivers' motion outlined below.



As anticipated by the Scheduling Order and by agreement of the parties, on February 2, 2011, Living Rivers deposed various Division personnel. Among other discoveries, Living Rivers determined through these depositions that, in approving the proposed PR Spring Mine and the process that will be used to extract bitumen from tar sands at the facility, the Division relied heavily on the Utah Division of Water Quality (DWQ) in matters related to the impact of mining operations on ground water, storm water and the environment. Division personnel repeated that they did not have the expertise to make these judgments on their own and therefore depended on DWQ in these matters. At the same time, however, the Division maintained that it was ultimately responsible for issuing the mining permit for the PR Spring Mine.

Central to the Division's reliance on DWQ in issuing the mining permit is a March 4, 2008 letter from Rob Herbert, Manager, Ground Water Protection Section, DWQ, to mining permit applicant, Earth Energy Resources, stating that the proposed mining and bitumen extraction operation "should have" a *de minimis* potential impact on ground water quality and that the project qualifies for a groundwater permit-by-rule. Attached as Exhibit "1". Moreover, the letter states that questions about the letter and determination should be directed to Mark Novak, Ground Water Protection Section. *Id.* Mr. Novak was also designated as the point of contact within DWQ for Earth Energy Resources during the permit-by-rule process and was the individual instructing the company which testing DWQ required on the material. Additionally, Mr. Novak is the individual within DWQ that is drafting a response to the February 8, 2011 correspondence from Earth Energy Resources referenced below.

Through discovery and during the February 2, 2011 depositions, Living Rivers also determined that Earth Energy Resources had changed the process it planned to use to extract bitumen from the mine's tar sands. Division personnel were only vaguely aware of this change and did not know whether DWQ had been alerted to the process alteration.

On February 10, 2011, Living Rivers was first copied on a February 8, 2011 letter from Earth Energy Resources to DWQ identifying changes to the PR Spring project since the March 4, 2008 DWQ letter and determination. The February 8, 2011 Letter is attached as Exhibit "2". In this letter, Earth Energy Resources contends that, although it had changed its method for extracting bitumen from the mine's tar sands, DWQ's "*de minimis*" determination was still valid. In addition, the company insists that the February 8, 2011 letter was a direct response to alleged issues and arguments (interestingly enough, which the company apparently gleaned from the questions asked in the February 2, 2011 depositions) raised by Living Rivers "that UDOGM should not have relied on DWQ's determination in approving the NOI" – in part because the underlying extraction process had changed. Finally, the February 8, 2011 letter asks DWQ to review the information contained in the letter and to "confirm that the Ground Water Discharge Permit-By-Rule status granted March 4, 2008 remains valid and in effect."

Based on the information secured from the Division during the February 2, 2011 depositions and based on the sudden and recent February 8, 2011 correspondence from Earth Energy Resources to DWQ, Living Rivers respectfully requests a change in or clarification of the scheduling order previously agreed to by the parties.



Specifically, Living Rivers requests:

- The opportunity to depose the following DWQ personnel – Rob Herbert, Manager, Ground Water Protection Section; Mark Novak, Ground Water Protection Section; and Mike George, UPDES IES Section. Living Rivers asks that it be able to depose these individuals or other DWQ staff members as soon as possible, but likely during the week of February 14, 2011, regardless of whether DWQ immediately responds to the February 8, 2011 letter. Additionally, Living Rivers asks that it be able to depose these individuals or other DWQ staff members if and **after** DWQ responds to or otherwise makes any decision related to the February 8, 2011 Letter, including after any action to “confirm” the validity of Permit-By-Rule status of the PR Spring mining operation. As with any discovery, the information gathered during these depositions may lead to other discovery requests.
- The opportunity to add any of these individuals – or other DWQ individuals determined to have a role in or to have been relied upon in the Division’s approval of the PR Spring Mine – to its witness list for the upcoming hearing before this Board.
- That Living Rivers be allowed to file supplemental expert testimony after it has deposed DWQ personnel that will be limited to issues raised in the context of DWQ’s actions relative to the PR Spring Mine.

Respectfully submitted this 14th day of February, 2011.



ROB DUBUC  
JORO WALKER  
Attorneys for Living Rivers



### CERTIFICATE OF SERVICE

I hereby certify that on this 14th day of February, 2011, I served a true and correct copy of this Motion to Amend Discovery Schedule and Witness List and Proposed Order by Petitioner Living Rivers to each of the following persons via email:

A. John Davis  
Holme Roberts & Owen, LLP  
299 South Main, Ste 1800  
Salt Lake City, UT 84111  
John.Davis@hro.com

Steven Alder  
Utah Assistant Attorney General  
1594 West North Temple  
Salt Lake City, UT 84114  
stevealder@utah.gov

Mike Johnson  
Utah Assistant Attorney General  
1594 West North Temple  
Salt Lake City, UT 84114  
mikejohnson@utah.gov

  
ROB DUBUC



# Exhibit 1





State of Utah

Department of  
Environmental Quality

Richard W. Sprott  
Executive Director

DIVISION OF WATER QUALITY  
Walter L. Baker, P.E.  
Director

JON M. HUNTSMAN, JR.  
Governor

GARY HERBERT  
Lieutenant Governor

March 4, 2008

Mr. Barclay Cuthbert  
Earth Energy Resources, Inc.  
Suite 740, 404 – 6<sup>th</sup> Avenue SW  
Calgary, Alberta, Canada T2P 0R9

Subject: PR Spring Tar Sands Project, Uintah and Grand Counties, Utah  
Ground Water Discharge Permit-By-Rule

Dear Mr. Cuthbert:

The Division of Water Quality (DWQ) has reviewed the information submitted by JBR Environmental Consultants, Inc. on February 22, 2008 requesting ground water discharge permit-by-rule for the proposed Earth Energy Resources, Inc. PR Spring tar sands project. The proposed operation consists of open-pit mining of tar sands, extraction of bitumen, and disposal of tailings and waste rock.

Below are several relevant factors for determining whether the proposed operation will have a *de minimis* effect on ground water quality or beneficial uses of ground water resources.

1. Based on Material Safety Data Sheets and other information that you sent to DWQ in January 2007, the reagent to be used for bitumen extraction is generally non-toxic and volatile, and most of it will be recovered and recycled in the extraction process. (Because the extraction process is proprietary at this time, this reagent will not be identified in public documents.)
2. Bitumen extraction will be done using tanks and equipment at the processing facility located at the mine site, and no impoundments or process water ponds are planned. Most of the water used in the process will be recovered and recycled.
3. Processed tailings will not be free-draining and will have moisture content in the 10 to 20 percent range. The tailings will not contain any added constituents that are not present naturally in the rock, other than trace amounts of the reagent used for bitumen extraction. Analysis of processed tailings using the Synthetic Precipitation Leachate Procedure indicates that leachate derived from the tailings by natural precipitation would have non-detectable levels of volatile and semi-volatile organic compounds. Unprocessed tar sands and processed tailings were analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) with an extraction process that uses a much lower pH than is likely to occur at the mine site. Analytical results indicate that TCLP metals would not be leached from the tailings at detectable levels except for barium, which was detected at levels below the Utah ground water quality standard of 2.0 milligrams per liter (Table 1 of UAC 317-6). Based on these data, the tailings will be disposed by backfilling into the mine pit.



4. The uppermost geologic formations at the site are the Parachute Creek and Douglas Creek Members of the Green River Formation, which consist of fluvial-deltaic and lacustrine-deltaic deposits of claystone, siltstone, fine-grained sandstone, and limestone. The Parachute Creek Member outcrops over most of the Earth Energy lease and is the 0 to 50-foot thick overburden above the tar sand deposits of the Douglas Creek Member. Shallow ground water at the site is not part of a regional aquifer but occurs in localized laterally discontinuous perched sandstone lenses of the Douglas Creek Member. Exploration drilling did not encounter ground water within 150 feet of the land surface. Based on records from the Division of Oil, Gas, and Mining, the closest major aquifer is the Mesa Verde Formation, which occurs approximately 2000 feet below ground surface in the area of the proposed mine. The topography of the project area is characterized by mesas incised by deep, narrow canyons, and limited shallow ground water discharges as springs in the canyon bottoms. There are no springs in the Earth Energy leased area and the nearest spring is PR Spring located slightly less than a mile east of the project site.

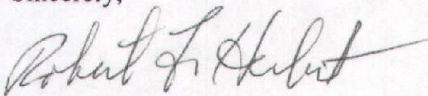
Considering the factors described above, the proposed mining and bitumen extraction operation should have a *de minimis* potential effect on ground water quality and qualifies for permit-by-rule status under UAC R317-6-6.2.A(25). If any of these factors change because of changes in your operation or from additional knowledge of site conditions, this permit-by-rule determination may not apply and you should inform the DWQ of the changes. If future project knowledge or experience indicates that ground water quality is threatened by this operation, the Executive Secretary may require that you apply for a ground water discharge permit in accordance with UAC R317-6-6.2.C.

This operation may require a storm water permit under the Utah Pollutant Discharge Elimination System (UPDES). Please contact Mike George of this office at (801) 538-9325 to determine if a storm water permit is required.

Disposal of domestic wastewater from the operation should be done in a manner approved by the appropriate local health department; Tri-County Health Department for Uintah County or Southeastern Utah Health Department for Grand County.

If you have any questions about this letter, please contact Mark Novak at (801) 538-6518.

Sincerely,



Rob Herbert, P.G., Manager  
Ground Water Protection Section

cc: Robert Bayer, JBR  
Paul Baker, DOGM  
Carl Adams, DWQ-TMDL  
Mike George, DWQ-UPDES Storm Water  
Dave Ariotti, Southeastern Utah District Engineer  
Scott Hacking, Tri-County District Engineer  
Southeastern Utah Health Department  
Tri-County Health Department



# Exhibit 2





www.earthenergyresources.com

February 08, 2011

Mr. Rob Herbert,  
Utah Division of Water Quality  
288 North 1460 West  
P.O. Box 144870  
Salt Lake City, Utah 84114-4870

Subject: PR Spring Tar Sands Project, Uintah and Grand Counties, Utah  
Ground Water Discharge Permit-by-Rule

Dear Mr. Herbert:

I write to identify some changes in our PR Spring Tar Sands Project ("Project"), which have been made since the March 4, 2008 letter informing Earth Energy Resources, Inc. ("Earth Energy") of the Project's Ground Water Discharge Permit-By-Rule status from the Utah Department of Environmental Quality, Division of Water Quality ("DWQ"). The letter, a copy of which is attached, enumerated four factors used in determining that the Project "will have a *de minimis* effect on ground water quality or beneficial uses of ground water resources."

First, based on Material Safety Data Sheets, (which are attached), the reagent used in the extraction process is non-toxic, volatile, and most of it will be recovered and recycled in the extraction process.

Second, extraction will occur using tanks and equipment at a processing facility at the mine site, no impoundments or process water ponds are planned, and most of the water used in the process will be recovered and recycled.

Third, the process tailings will not be free draining, with moisture content in the 10-20% range, and "will not contain any added constituents that are not present naturally in the rock, other than trace amounts of the reagent used for bitumen extraction."

Fourth, the letter addressed the hydrologic setting of the Project.

The letter also states that "[i]f any of these factors change because of changes in your operation or from additional knowledge of site conditions, this permit-by-rule determination may not apply and you should inform DWQ of the changes."

Since the PR Spring Mine, Request for Permit-by-Rule Determination ("Request") was submitted on February 21, 2008 by JBR Environmental Consultants, Inc. on behalf of Earth

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Suite # 950, 633 - 6 Avenue SW, Calgary, AB T2P 2Y5 Canada Office: 403.233.9366 Facsimile: 403.290.0045





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Energy, Earth Energy has continued to refine the process for extracting bitumen from tar sand to improve recovery and reduce the potential for impacts to the environment.

First, we have removed the stabilizer component from the cleaning emulsion used for bitumen extraction. Page 5 of the Request provides details of the mixing of the cleaning emulsion and the tar sands. In our development of this "Ophus Process," we have determined that the emulsion can be formed concurrently with introduction to the tar sands, so pre-mixing and stabilization of the emulsion is no longer required. The stabilizer, known as Witconate, is an alkyl aryl sulphonate and is oil soluble, so when the cleaning emulsion was mixed with tar sand, the stabilizer dissolved into the oil phase and was not present in the tailings. The use of a stabilizer was not among the factors that DWQ used in determining that the Project will have a *de minimis* effect on ground water quality, and its omission from the cleaning emulsion removes a chemical from the process stream.

Second, we have identified de-watering equipment that we plan to use on the Project. Page 6 of the Request includes details of methods to de-water sand and fines remaining after bitumen is removed from the tar sands, and we identified a "shale shaker (or similar device)." With a global supplier of mine processing equipment, we have identified equipment that will economically recover water from the sand and fines. For the sand, we now expect to use a horizontal belt filter, and for the fines we expect to use a disk filter. With these components, the aggregate water content of the blended tails should be less than 15% by weight – maximizing our recovery of available water while providing a material at near optimum moisture content for compaction. The shale shaker that we initially contemplated using was not among the four factors that DWQ used to determine that the Project will have a *de minimis* effect on ground water quality.

Third, working with the Utah Department of Natural Resources Division of Oil, Gas and Mining ("DOGM"), we have finalized the size of the overburden/interburden storage areas and provided more detail on the sequencing of mining and backfilling. Page 5 of the Request stated that the overburden/interburden storage areas would be approximately 25 acres each. Our final approved site design includes two overburden/interburden storage areas of 36 and 34 acres. The sizes of these storage areas were not among the four factors, on which DWQ relied in determining that the Project will have a *de minimis* effect on ground water quality.

Fourth, working with DOGM, we have determined it is necessary to dispose of some processed sands and fines in the overburden/interburden storage areas. On page 6 of the Request, we stated that the processed sands and fines remaining after bitumen extraction would be used to backfill the open pit. During initial operations, the pit opening will not be sufficiently large to accept processed sands and fines, so some of these tailings will be placed in the overburden/interburden storage areas. Earth Energy has worked closely with JBR Environmental Consultants and DOGM to ensure that the final design will isolate and

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encapsulate the tailings within the coarser overburden and interburden, so that they will not migrate and will not impact surface or ground water below the storage areas. The disposal of these tailings was not among the four factors that DWQ used to determine that the Project will have a *de minimis* impact on ground water quality.

None of these process improvements affect the factors used in determining the Projects permit-by-rule status, and, for that reason, had not been reported to DWQ. However, in a challenge to the DOGM's approval of Earth Energy's Notice of Intent to Commence Large Mining Operations ("NOI"), by Living Rivers and its counsel, Western Resources Advocates, these improvements have been raised in an attempt to show that DOGM should not have relied on DWQ's determination in approving the NOI.

Living Rivers and its counsel also focus on the portion of the Request which states: "There are no springs in the Earth Energy leased area." Our understanding of this statement was that there are no springs within the approximately 200-acre Project area, which is accurate. Earth Energy's lease encompasses a much broader area: 5,930 acres, and there are two USGS mapped springs in that much larger area, as described on page 2 of the Request. A map submitted and approved by DOGM, which shows water features in the vicinity, is attached.

Please review this information in conjunction with the original Request and confirm that the Ground Water Discharge Permit-By-Rule status granted on March 4, 2008 remains valid and in effect. If you have any questions or require further information, please contact either the undersigned or Mr. Robert Bayer of JBR Environmental Consultants, Inc. (801.943.4144).

Yours truly,  
Earth Energy Resources, Inc.

Barclay Cuthbert  
Vice President

Enclosure(s)

cc: Robert J. Bayer, JBR Environmental Consultants, Inc.  
Dana Dean, Utah Division of Oil, Gas and Mining  
Paul Baker, Utah Division of Oil, Gas and Mining  
A. John Davis, Holme Roberts & Owen LLP

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**BEFORE THE BOARD OF OIL, GAS AND MINING  
DEPARTMENT OF NATURAL RESOURCES  
STATE OF UTAH**

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<b>IN THE MATTER OF THE REQUEST</b>	<b>: [PROPOSED]</b>
<b>FOR AGENCY ACTION OF LIVING</b>	<b>: ORDER AMENDING DISCOVERY</b>
<b>RIVERS TO APPEAL THE DECISION</b>	<b>: SCHEDULE AND WITNESS LIST</b>
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<b>APPLICATION OF EARTH ENERGY</b>	<b>: Docket No. 2010-027</b>
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<b>OPERATIONS AT THE PR SPRINGS</b>	<b>:</b>
<b>MINE</b>	<b>:</b>

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Having reviewed the Motion to Amend Discovery Schedule and Witness List of Living Rivers in the above-captioned matter, and for good cause showing, the Utah Board of Oil, Gas, and Mining (Board), pursuant to Utah Admin Code r. 641-106-700, hereby orders that Living Rivers be given the opportunity to depose the following DWQ personnel: Rob Herbert, Manager Ground Water Protection Section; Mark Novak, Ground Water Protection Section; and Mike George, UPDES IES Section, both during the week of February 14, 2011 and after DWQ responds to or otherwise makes any decision related to the Earth Energy Resources February 8, 2011 letter. The Board hereby also orders that Living Rivers be given the opportunity to add any of these individuals, or other DWQ personnel, to its witness list, and that it be allowed to file supplemental expert testimony after it has deposed DWQ personnel, with that testimony limited to issues raised in the context of DWQ's actions relative to the PR Spring Mine.

So Ordered. Issued this \_\_\_\_ of February, 2011.

Utah Board of Oil, Gas, and Mining

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Douglas E. Johnson  
Chairman